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EXAMINER
FORMAN, BETTY J

ART UNIT	PAPER NUMBER
1634	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/553,993	Applicant(s) GUNDERSON ET AL.	
	Examiner BJ Forman	Art Unit 1634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05-24-02* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *19* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 24 May 2002 has been entered.

2. This action is in response to papers filed 24 May 2002 in Paper No. 18 and 19 in which Remarks regarding the previous rejection, a Supplemental IDS, a Declaration under 35 U.S.C. 1.132 and Attachments A, B and C were submitted. The previous rejections in the Office Action of Paper No. 14 dated 27 November 2001 are maintained. Applicant's arguments, remarks and Declaration have been thoroughly reviewed and are discussed below. New grounds for rejection are discussed.

Currently claims 1-14 are under prosecution.

Information Disclosure Statement

3. The references listed on the 1449 of Paper No. 19 have been reviewed and considered. The list of patent applications on the Statement of Relatedness of Paper No. 19 is acknowledged. It is noted that Applicant has not stated the relationship between the instant

application and the listed patent applications. It is suggested that Applicant provide information regarding the relationships between these applications and the instant application.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

5. Claims 1-9, 11, 13 and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by Macevicz (U.S. Patent No. 6,280,935, filed 4 June 1998).

Regarding Claim 1, Macevicz discloses a method of detecting a target nucleic acid sequence, said method comprising: attaching a first adapter nucleic acid (i.e. oligonucleotide tag) to a first target nucleic acid sequence to form a modified first target nucleic acid sequence; contacting said modified first target nucleic acid with an array comprising: a substrate with a patterned surface comprising discrete sites and at least a first sub-population on said substrate comprising a first capture probe, such that said first capture probe and said modified

first target nucleic acid sequence form a hybridization complex; and detecting the presence of said modified first target nucleic acid sequence (Column3, lines 7-39; Column 4, lines 3-9 and 20-38; and Column 15, lines 24-65) wherein said microspheres are distributed on a patterned surface (Column 15, line 66-Column 16, line 2).

Regarding Claim 2, Macevicz discloses the method further comprising attaching a second adapter nucleic acid to a second target nucleic acid; contacting with said array and detecting the presence of said second target i.e. second member of the library (Column 16, lines 12-67).

Regarding Claim 3, Macevicz discloses the method wherein said attaching is by an amplification reaction (Column 17, lines 12-26).

Regarding Claim 4, Macevicz discloses the method wherein said amplification reaction is PCR (Column 17, lines 58-62 and Column 33, lines 3-65).

Regarding Claim 5, Macevicz discloses the method wherein said amplification reaction is OLA (Column 17, lines 58-62 and Column 33, lines 3-65).

Regarding Claim 6, Macevicz discloses the method wherein said attaching is by chemical synthesis (Column 20, lines 39-53).

Regarding Claim 7, Macevicz discloses the method wherein said modified target nucleic acid comprises a label (Column 33, lines 28-46).

Regarding Claim 8, Macevicz discloses the method wherein said label is fluorescent (Column 33, lines 28-46).

Regarding Claim 9, Macevicz discloses the method wherein said adapter is labeled (Column 33, lines 28-46).

Regarding Claim 11, Macevicz discloses the method wherein said detecting is done by hybridizing a labeled probe to said modified target sequence (Column 24, lines 24-32).

Regarding Claim 13, Macevicz discloses the method wherein said discrete sites comprise wells (Column 32, lines 5-10).

Regarding Claim 14, Macevicz discloses a method of detecting a target nucleic acid sequence, said method comprising: hybridizing a first primer portion comprising an adapter sequence (ligation probe) to a target sequence; hybridizing a second primer to a second portion of said target sequence; ligating said first and second primer to form a modified primer; contacting said modified primer with an array comprising: a substrate with a surface comprising discrete sites and a population of microspheres comprising a first nucleic acid capture probe that hybridizes to said adapter sequence wherein said microspheres are distributed on said surface and detecting the presence of said target sequence (Column 34, lines 11-38).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claim 10 and 12 are rejected under 35 U.S.C. 102(e) as being unpatentable over Macevicz (U.S. Patent No. 6,280,935, filed 4 June 1998) in view of Walt et al (U.S. Patent No. 6327,410, filed 11 September 1998).

Regarding Claim 10, Macevicz teaches the method of detecting a target nucleic acid sequence, said method comprising: attaching a first adapter nucleic acid (i.e. oligonucleotide

tag) to a first target nucleic acid sequence to form a modified first target nucleic acid sequence; contacting said modified first target nucleic acid with an array comprising: a substrate with a patterned surface comprising discrete sites and at least a first sub-population on said substrate comprising a first capture probe, such that said first capture probe and said modified first target nucleic acid sequence form a hybridization complex; and detecting the presence of said modified first target nucleic acid sequence (Column3, lines 7-39; Column 4, lines 3-9 and 20-38; and Column 15, lines 24-65) wherein said microspheres are distributed on a patterned surface (Column 15, line 66-Column 16, line 2) and wherein the targets are labeled (Column 33, lines 28-46) but they do not teach the targets are labeled prior to attaching. However, Walt et al teach a similar method of target detection comprising contacting a modified target sequence with an array comprising a substrate with a patterned surface comprising discrete sites and a population of microspheres comprising a first and second subpopulation capture probe wherein the microspheres are distributed on said patterned surface and detecting the presence of said first modified target sequence wherein said target is labeled prior to contacting (Column 21, lines 17-25). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to rearrange the labeling steps of Macevicz with the well known target labeling prior to attaching and capture as taught by Walt et al based on experimental design for the obvious benefits of optimizing labeling to thereby maximize results. The courts have stated that wherein the process steps are known, absent unexpected results, the rearrangement of the process steps is prima facie obvious (see *In re Burhans* 154, F.2d 690, 69 USPQ 330 (CCPA 1946).

Regarding Claim 12, Macevicz teach the method wherein the substrate is selected from one of many known in the art and is selected based on efficiency and optical properties (Column 14, line 61-Column 15, line 23, especially lines 17-21) but they do not specifically teach the support is a fiber optic bundle. However, fiber optic bundle supports were well known in the art at the time the claimed invention was made as taught by Walt et al who

specifically teach that their support, in addition to providing optical properties which permit optical resolution of tens of thousands of target sequences, is efficient and inexpensive (Column 4, lines 35-58 and Column 5, lines 24-30). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the fiber optic support of Walt et al to the support of Macevicz based on the suggestion of Macevicz to apply known supports based on efficiency and optical properties (Column 14, line 61-Column 15, line 23, especially lines 17-21) and for the expected benefits of exceptional efficiency and optical properties as taught by Walt et al (Column 4, lines 35-58 and Column 5, lines 24-30).

8. Claims 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barany et al. (U.S. Patent No. 6,027,889, filed 28 May 1997) in view of Walt et al. (U.S. Patent No. 6,023,540, filed 14 may 1997).

Regarding Claim 1, Barany et al. teach a method of detecting a target nucleic acid sequence, said method comprising: attaching a first adapter nucleic acid to a first target nucleic acid sequence to form a modified first target nucleic acid sequence; contacting said modified first target nucleic acid with an array comprising: a substrate with a patterned surface comprising discrete sites and at least a first sub-population on said substrate comprising a first capture probe, such that said first capture probe and said modified first target nucleic acid sequence form a hybridization complex; and detecting the presence of said modified first target nucleic acid sequence (Column 26, line 37-Column 27, line 19 and Claim 13). The extra method steps of Barany et al. are encompassed by the open claim language "comprising" of the instant claims. Barany et al. do not teach the method wherein the array

further comprises a population of microspheres which comprise the first sub-population comprising a first capture probe; wherein said microspheres are distributed on said surface. However, Walt et al. teach a similar method for detecting a target nucleic acid sequence comprising: contacting said first target nucleic acid sequence with an array comprising: a substrate with a patterned surface comprising discrete sites; and a population of microspheres comprising at least a first sub-population comprising a first capture probe such that said first capture probe and said first target nucleic acid sequence form a hybridization complex, wherein said microspheres are distributed on said surface (Column 4, lines 4-14); and detecting the presence of said first target nucleic acid sequence (Column 10, lines 4-41) wherein microspheres comprising different capture probes are mixed but individually detected and identified allowing for individual identification of thousands of captured target sequences using an apparatus which is easy to use and manufacture (Column 3, lines 17-30). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the array of Barany et al. to further comprise microspheres wherein the microsphere are distributed on the array at discrete site and wherein the microspheres comprise the capture probes for the expected benefit of individual identification of thousands of captured target sequences using an apparatus which is easy to manufacture and use as taught by Walt et al. (Column 3, lines 17-30).

Regarding Claim 2, Barany et al. teach the method further comprising: attaching a second adapter nucleic acid to a second target nucleic acid sequence to form a modified second target nucleic acid sequence; contacting said modified second target nucleic acid sequence with said array wherein said array comprises at least a second sub-population comprising a second capture probe such that said second capture probe and said modified second target nucleic acid sequence form a hybridization complex; and detecting the presence of said modified second target nucleic acid sequence (Column 26, lines 55-67) but they do not teach a population of microspheres. However, Walt et al. teach the similar method further comprising a

second target nucleic acid sequence and contacting said second target nucleic acid sequence with said array wherein said population of microspheres comprises at least a second sub-population comprising a second capture probe such that said second capture probe and said first target nucleic acid sequence form a hybridization complex, wherein said microspheres are distributed on said surface (Column 4, lines 4-14); and detecting the presence of said second target nucleic acid sequence (Column 10, lines 4-41) wherein microspheres comprising different capture probes are mixed but individually detected and identified allowing for individual identification of thousands of captured target sequences using an apparatus which is easy to manufacture and use (Column 3, lines 17-30). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the array of Barany et al. to further comprise microspheres wherein the microsphere are distributed on the array at discrete site and wherein the microspheres comprise the capture probes for the expected benefit of individual identification of thousands of captured target sequences using an apparatus which is easy to manufacture and use as taught by Walt et al. (Column 3, lines 17-30).

Regarding Claim 3, Barany et al. teach the method wherein said attaching is by an amplification reaction (Column 9, line 61-Column 10, line 23).

Regarding Claim 4, Barany et al. teach the method wherein said amplification reaction is the polymerase chain reaction (Column 9, line 61-Column 10, line 23).

Regarding Claim 5, Barany et al. teach the method wherein said amplification reaction is the oligonucleotide ligation amplification reaction (Column 9, lines 17-60).

Regarding Claim 6, Barany et al. teach the method wherein said attaching is by chemical synthesis i.e. the oligonucleotides primers comprising the adapters are synthesized using phosphoramidite chemistry (Column 46, lines 25-50).

Regarding Claim 7, Barany et al. teach the method wherein said modified target nucleic acid sequence comprises a label (Column 9, lines 61-67).

Regarding Claim 8, Barany et al. teach the method wherein said label is a fluorescent label (Column 46, lines 24-50).

Regarding Claim 9, Barany et al. teach the method wherein said adapter nucleic acid is labeled i.e. 5' end of the adapter primer is labeled (Column 46, lines 24-50).

Regarding Claim 10, Barany et al. teach the method wherein said target nucleic acid sequence is labeled prior to attaching (Column 46, lines 24-50).

Regarding Claim 11, Barany et al. teach a method of detecting a target nucleic acid sequence, said method comprising: attaching a first adapter nucleic acid to a first target nucleic acid sequence to form a modified first target nucleic acid sequence; contacting said modified first target nucleic acid with an array comprising: a substrate with a patterned surface comprising discrete sites comprising at least a first sub-population comprising a first capture probe, such that said first capture probe and said modified first target nucleic acid sequence form a hybridization complex; and detecting the presence of said modified first target nucleic acid sequence (Column 18, line 22-Column 19, line 22). The extra method steps of Barany et al. are encompassed by the open claim language "comprising" of the instant claims. Barany et al. do not teach the method wherein the array further comprises a population of microspheres which comprise the first sub-population comprising a first capture probe; wherein said microspheres are distributed on said surface. However, Walt et al. teach a similar method for detecting a target nucleic acid sequence comprising: contacting said first target nucleic acid sequence with an array comprising: a substrate with a patterned surface comprising discrete sites; and a population of microspheres comprising at least a first sub-population comprising a first capture probe such that said first capture probe and said first target nucleic acid sequence form a hybridization complex, wherein said microspheres are distributed on said surface (Column 4, lines 4-14); and detecting the presence of said first target nucleic acid sequence (Column 10, lines 4-41) wherein microspheres comprising different capture probes are mixed but individually detected and identified allowing for

individual identification of thousands of captured target sequences using an apparatus which is easy to manufacture and use (Column 3, lines 17-30). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the array of Barany et al. to further comprise microspheres wherein the microsphere are distributed on the array at discrete site and wherein the microspheres comprise the capture probes for the expected benefit of individual identification of thousands of captured target sequences using an apparatus which is easy to manufacture and use as taught by Walt et al. (Column 3, lines 17-30).

Regarding Claim 12, Barany et al. teach the substrate is an array (Column 27, lines 10-15) but they do not teach the array is a fiber optic bundle. However, Walt et al. teach the similar method wherein the substrate is a fiber optic bundle (Column 4, lines 4-14). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the array of Barany et al. to further comprise microspheres wherein the microsphere are distributed on a fiber optic bindle substrate for the expected benefit of individual identification of thousands of captured target sequences using an apparatus which is easy to manufacture and use as taught by Walt et al. (Column 3, lines 17-30).

Regarding Claim 13, Barany et al. teach said substrate comprises discrete sites (Column 27, lines 10-15) but they do not teach said discrete sites comprise wells. However, Walt et al. teach the similar method wherein said discrete sites comprise wells (Column 4, lines 4-14). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the discrete sites on the substrate of Barany et al. to provide microspheres distributed on a substrate at the discrete sites and wherein each discrete site comprises a well for the expected benefit of individual identification of thousands of captured target sequences using an apparatus which is easy to manufacture and use as taught by Walt et al. (Column 3, lines 17-30).

Regarding Claim 14, Barany et al. teach a method of detecting a target nucleic acid sequence comprising: hybridizing a first primer to a first portion of a target sequence wherein said first primer further comprises an adapter sequence; hybridizing a second primer to a second portion of said target sequence; ligating said first and second primers to form a modified primer; contacting said adapter sequence of said modified primer with an array comprising: a substrate with a surface comprising discrete sites comprising at least a first sub-population comprising a first capture probe, such that said first capture probe and said modified first target nucleic acid sequence form a hybridization complex; and detecting the presence of said modified first target nucleic acid sequence (Column 26, line 37-Column 27, line 19 and Claim 13). The extra method steps of Barany et al. are encompassed by the open claim language "comprising" of the instant claims. Barany et al. do not teach the method wherein the array further comprises a population of microspheres comprising the at least first sub-population wherein said microspheres are distributed on said surface. However, Walt et al. teach a similar method for detecting a target nucleic acid sequence comprising: contacting said first target nucleic acid sequence with an array comprising: a substrate with a patterned surface comprising discrete sites; and a population of microspheres comprising at least a first sub-population comprising a first capture probe such that said first capture probe and said first target nucleic acid sequence form a hybridization complex, wherein said microspheres are distributed on said surface (Column 4, lines 4-14); and detecting the presence of said first target nucleic acid sequence (Column 10, lines 4-41) wherein microspheres comprising different capture probes are mixed but individually detected and identified allowing for individual identification of thousands of captured target sequences using an apparatus which is easy to manufacture and use (Column 3, lines 17-30). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the array of Barany et al. to further comprise microspheres wherein the microsphere are distributed on the array at discrete site and wherein the microspheres comprise the capture probes for the

expected benefit of individual identification of thousands of captured target sequences using an apparatus which is easy to manufacture and use as taught by Walt et al. (Column 3, lines 17-30).

Response to Arguments

9. Applicant argues that Barany et al disclose use of an addressable array to detect their ligation product but does not teach using a population of microspheres as a component of the array. And Applicant argues, Walt et al teaches a method using a substrate having a patterned surface comprising microspheres randomly distributed on the surface wherein their random distribution results in loss of information regarding the microsphere functionality. Applicant argues that there is a significant difference in the way Barany and Walt determine identity of the targets (i.e. the method of Barany relies of spatial position and the method of Walt relies on encoded microspheres and therefore, the principle operations of Barany and Walt are fundamentally different). Because of this difference, combination of their teachings is insufficient for establishing obviousness and because of this difference, the examiner has not met the burden of establishing a prima facie case of obviousness because the proposed modification would render the prior art being modified unsatisfactory. The argument has been considered but is not found persuasive because the method of Barany et al is not dependent upon addressable arrays, but is merely one embodiment of their invention. Barany et al repeatedly state at their ligation products may be detected in different formats (e.g. Column 18, line 56-Column 19, line 21). As such, the method of Barany et al does not depend on "the spatial position of the hybridization signal on the array substrate" as Applicant asserts. Therefore, Applicant's argument of fundamental difference is not found persuasive.

Applicant argues that there is no teaching, suggestion or motivation to combine Barany et al and Walt et al to arrive at the claimed invention. The argument has been considered but is not found persuasive because as stated above, the fundamental operation of Barany et al does not depend on addressable arrays. Additionally, Walt et al. clearly teaching motivation for modifying the detection of Barany et al. with their randomly distributed microsphere arrays i.e. the arrayed microspheres prove an "extremely uniform" signal and the signals can be analyzed using commercially available software whereby signals can be detected automatically within seconds (Column 4, lines 15-28). Therefore, one skilled in the art would have been motivated to modify detection of Barany et al. with the arrayed microspheres as taught by Walt et al. for the benefits taught by Walt et al. i.e. speed and accuracy of detection (Column 4, lines 15-28).

Applicant argues that the teachings of Walt et al. would change the principle operation of Barany et al. and therefore, the combination of the two references is not allowed by the MPEP. The argument has been considered but is not found persuasive because the principle operation of Barany et al. is the hybridization and detection of nucleic acid sequences (Abstract) and as stated above the method of Barany et al is not dependent upon addressable arrays. Additionally, the principle operation of Walt et al. is hybridization and detection of chemical functionalities (e.g. nucleic acids) (Abstract). Therefore, both Barany et al. and Walt et al. share principle operations i.e. detection of hybridized target nucleic acid sequences.

Applicant further argues that the examiner has not provided specific reasons in the teaching of Barany et al. and Walt et al. that the array of Barany et al has some disadvantage such that it would benefit form the use of microspheres or any advancement or improvement. Applicant argues that the examiner has not defined a problem in the method of Barany that would provide motivation to modify the method. The arguments have been considered but is not found persuasive because as stated above, Walt et al clearly provides the motivation to modify the detection of Barany et al i.e. speed and accuracy of detection (Walt et al, Column 4, lines 15-28).

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

Response to Applicant's Remarks Regarding Secondary Considerations

10. Applicant cites the courts for having stated that objective evidence of nonobviousness (e.g. commercial success) must be taken into account before a conclusion of obviousness can be reached. And Applicant provides the following evidence of their commercial success:

A news release announcing an agreement between Applicant and Johns Hopkins Medical University in which Illumina (Applicant) will provide single nucleotide polymorphism genotyping services on samples collected by Johns Hopkins.

A news release and statement from the CEO of Oxagen announcing the agreement between Applicant and Oxagen in which Illumina (Applicant) will provide single nucleotide polymorphism genotyping services on samples collected by the Oxagen.

Applicant argues that in view of the above evidence of commercial success and in view of the lack of teaching, suggestion or motivation to combine the teachings of Barany et al and Walt et al a *prima facie* case of obviousness has not been established.

The arguments have been considered but are not found persuasive for numerous reasons. A prima facie case of obviousness has been reiterated and further discussed above. New grounds for rejection in view of Applicant's arguments clearly demonstrate that the instant invention is obvious in view of the teachings of Barany et al and Walt et al.

Regarding commercial success, Applicant's arguments and illustrations of commercial success are not deemed as sufficient evidence of nonobviousness because Applicant has not clearly established a nexus between the claimed invention and commercial success.

> An applicant who is asserting commercial success to support its contention of nonobviousness bears the burden of proof of establishing a nexus between the claimed invention and evidence of commercial success (see MPEP, 716.03).
>
> The courts have stated that when considering evidence of commercial success, care should be taken to determine that the commercial success alleged is directly derived from the invention claimed, in a marketplace where the consumer is free to choose on the basis of objective principles, and that such success is not the result of heavy promotion or advertising, shift in advertising, consumption by purchasers normally tied to applicant or assignee, or other business events extraneous to the merits of the claimed invention, etc. *In re Mageli*, 470 F.2d 1380, 176 USPQ 305 (CCPA 1973) and *In re Noznick*, 478 F.2d 1260, 178 USPQ 43 (CCPA 1973).
>
> In ex parte proceedings before the Patent and Trademark Office, an applicant must show that the claimed features were responsible for the commercial success of an article if the

> evidence of nonobviousness is to be accorded substantial weight. See In re Huang, 100 F.3d 135, 140, 40 USPQ2d 1685, 1690 (Fed. Cir. 1996) (Inventor's opinion as to the purchaser's reason for buying the product is insufficient to demonstrate a nexus between the sales and the claimed invention.). Merely showing that there was commercial success of an article which embodied the invention is not sufficient. Ex parte Remark, 15 USPQ2d 1498, 1502-02 (Bd. Pat. App. & Inter. 1990).

As evidence of commercial success, Applicant has provided Attachment B consisting of a copy of a brochure titled "Illumina's SNP Genotyping Services and Technology" and a copy of a 29 page Power Point presentation. The brochure is clearly used to promote the products and services of Illumina as evidenced by the last page which states "learn more by calling us at 1.800.809.4566 or visiting www.illumina.com/1snp." The Power Point presentation also provides evidence of advertising and/or promotion as it itemizes services provided and advantages of Illumina technology. As such, Exhibit B suggests that Applicant's commercial success may be the result of promotion and/or advertising.

As further evidence of commercial success, Applicant has provided Attachment C consisting of 6 news releases regarding the agreements detailed above. Five of the six news releases are provided by Illumina on their "shareholder" web site. Each of the five news releases contains the same paragraph predicting the future of Illumina and providing the details for investing and contacting Illumina i.e. "Illumina (Nasdaq: ILMN; www.illumina.com) is developing next-generation tools....". As such, the news releases provide further evidence that Applicant's commercial success may be the result of promotion and/or advertising.

As additional evidence of commercial success, Applicant has provided a Declaration signed by John Stuelpnagel a co-inventor of the instant invention. The Declaration provided by Dr. Stuelpnagel reiterates the above listed agreements and states that the agreements utilize methods comprising attaching adapter nucleic acids to target sequence wherein the adapter

hybridizes to specific capture probe immobilized on microspheres distributed on the patterned surface of a substrate. Dr. Stuelpnagel further declares that the "systems high throughput, cost-effectiveness, accuracy and flexibility, as embodied by claims 1 and 14 are directly responsible for its [Illumina's] commercial success." Dr. Stuelpnagel's Declaration has been considered but is not found persuasive because while the Declaration suggests that Illumina utilizes methods embodied by the claims, the Declaration does not provide evidence that the products sold correspond to the claimed invention. Therefore, the Declaration does not provide the nexus between the claimed invention and Applicant's commercial success.

> An affidavit or declaration attributing commercial success to a product or process "constructed according to the disclosure and claims of [the] patent application" or other equivalent language **does not establish a nexus between the claimed invention and the commercial success** because there is no evidence that the product or process which has been sold corresponds to the claimed invention, or that whatever commercial success may have occurred is attributable to the product or process defined by the claims. Ex parte Standish, 10 USPQ2d 1454, 1458 (Bd. Pat. App. & Inter. 1988).

Applicant's arguments regarding their commercial success being evidence of nonobviousness is not found persuasive because Applicant's exhibits provide multiple examples of advertising and promotion which suggests that Applicant's commercial success may be a result of the illustrated advertising and promotion and because Applicant's exhibits and Declaration do not provide a nexus between the claimed invention and commercial success. Therefore, Applicant has not shown that the features of the instantly claimed invention is responsible for Illumina's commercial success.

Double Patenting

11. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

12. Claims 1-14 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 1-14 of copending Application No. 09/556,463. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

13. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

14. Claims 1-14 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-12 and 15-16 of copending Application No. 09/535,854. Although the conflicting claims are not identical, they are not patentably distinct from each other because the instant claims, drawn to a method of

detecting a target nucleic acid, are a genus of the '854 claims which are drawn to a method of determining the identification of a nucleotide at a detection position in a target sequence and a genus is obvious over the species. Therefore, the instant claims are obvious over the '854 claims.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

15. Claims 1-14 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-17 of copending Application No. 09/513,362. Although the conflicting claims are not identical, they are not patentably distinct from each other because the instant claims, drawn to a method of detecting a target nucleic acid, are a genus of the '362 claims which are drawn to a method of sequencing a target sequence wherein both sets of claims comprise similar method steps. The genus is obvious over the species and therefore, the instant claims are obvious over the '362 claims.

Conclusion

16. No claim is allowed.

17. The examiner's Art Unit has changed from 1655 to 1634. Please address future correspondence to Art Unit 1634.

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BJ Forman whose telephone number is (703) 306-5878. The examiner can normally be reached on 6:30 TO 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Jones can be reached on (703) 308-1152. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-4242 for regular communications and (703) 308-8724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.

BJ Forman, Ph.D.
Patent Examiner
Art Unit: 1634
July 22, 2002